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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

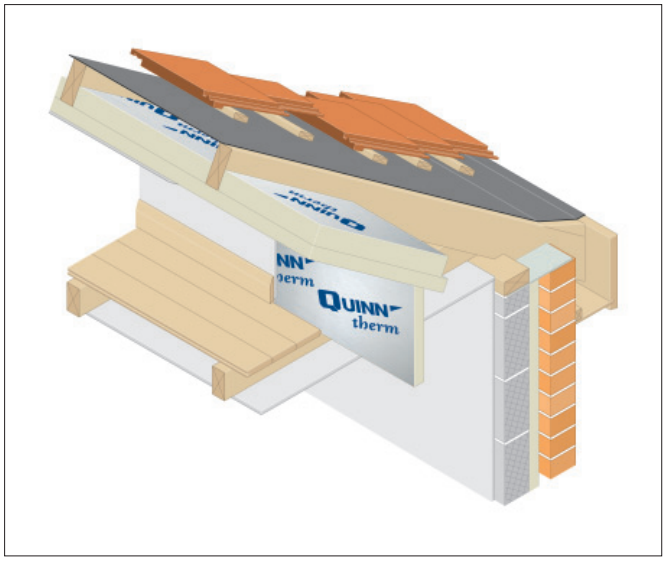
Agrément Certificate
07/4444
Product Sheet 4

QUINN THERM

QUINN THERM QR PITCHED ROOF BOARD

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Quinn Therm QR Pitched Roof Board, a rigid polyisocyanurate foam board with a composite foil facing on both sides, for use in timber pitched roofs, horizontal ceilings, dwarf walls and dormer cheeks of existing and new domestic and non-domestic buildings.



AGRÉMENT CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Thermal performance — the product has a thermal conductivity ($\lambda_{90/90}$ *value*) of 0.022 $W \cdot m^{-1} \cdot K^{-1}$ (see section 5).

Condensation — the insulation core has a water vapour resistivity of approximately 300 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$ and each foil facing has a high water vapour resistance of 4000 $MN \cdot s \cdot g^{-1}$, but the risk of interstitial condensation will depend on the construction and should be assessed for each project (see section 6).

Behaviour in relation to fire — the product will not contribute to the development stages of a fire or present a smoke or toxic hazard (see section 7).

Durability — the product is durable, rot-proof and sufficiently stable, and will remain effective as an insulating material for the life of the roof structure in which it is incorporated (see section 12).

The BBA has awarded this Agrément Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 18 November 2011

Sean Moriarty
Head of Approvals — Physics

Greg Cooper
Chief Executive

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

Regulations

In the opinion of the BBA, Quinn Therm QR Pitched Roof Board, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:

The Building Regulations 2010 (England and Wales)

Requirement:	C2(c)	Resistance to moisture
Comment:		The risk of interstitial condensation must be assessed for each construction. The product can adequately limit the risk of surface condensation. See sections 6.1 and 6.5 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The product can contribute to meeting this Requirement. See sections 5.1 and 5.2 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is acceptable. See section 12 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The product can contribute to a construction meeting this Regulation. See section 12 and the *Installation* part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	3.15	Condensation
Comment:		The risk of interstitial condensation must be assessed for each construction. The product can adequately limit the risk of surface condensation, with reference to clauses 3.15.1[1][2], 3.15.3[1][2], 3.15.4[1][2] and 3.15.5[1][2]. See sections 6.1 and 6.6 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying clauses, or parts of clauses, 6.1.2[2], 6.1.6[1], 6.2.1[1][2], 6.2.3[1], 6.2.4[2], 6.2.5[2], 6.2.6[1], 6.2.7[1], 6.2.8[2], 6.2.9[1][2], 6.2.10[1], 6.2.11[1][2], 6.2.12[2] and 6.2.13[1][2] of these Standards. See sections 5.1 and 5.2 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The product can contribute to meeting the relevant Requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition the product can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4[1][2] Aspects 1[1][2] and 2[1], 7.1.6[1][2] Aspects 1[1][2] and 2[1] and 7.1.7[1][2] Aspect 1[1][2]. See section 5.1 of this Certificate.
Regulation:	12	Building standards — conversions
Comment:		Comments made in relation to the product under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1[1][2] and Schedule 6[1][2].

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Domestic).

The Building Regulations (Northern Ireland) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 12 and the *Installation* part of this Certificate.
Regulation:	C5	Condensation
Comment:		The risk of interstitial condensation must be assessed for each construction. See section 6.1 of this Certificate.
Regulation:	F2(a)(i)	Conservation measures
Regulation:	F3(2)	Target carbon dioxide Emissions Rate
Comment:		The product can contribute to satisfying these Regulations. See sections 5.1 and 5.2 of this Certificate.

Construction (Design and Management) Regulations 2007
Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 2 *Delivery and site handling* (2.3) and 13 *General* (13.2) of this Certificate.

Additional Information

NHBC Standards 2011

NHBC accepts the use of Quinn Therm QR Pitched Roof Board, when installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 7.2 *Pitched roofs*.

Technical Specification

1 Description

1.1 Quinn Therm QR Pitched Roof Board, comprises of rigid polyisocyanurate foam board, faced with a composite foil facing on both sides.

1.2 The product has the nominal characteristics of:

Length (mm)	1200, 2400
Width (mm)	600, 1200
Insulation thickness (mm)	15 to 200 (in 5 mm increments)
Minimum compressive strength at 10% compression (kPa)	120
Edge profile	Square, rebated.

1.3 Ancillary items for use with this product, but outside the scope of this Certificate are:

- roof tile underlay
- Helifix InSkew 600 or similar spiral fixings
- galvanized slab nails, ring-shank nails and nails
- pre-treated counter battens and tiling laths
- roofing slates or tiles
- vapour control layer (VCL) and plasterboard.

2 Delivery and site handling

2.1 The product is delivered to site shrink-wrapped in polythene packs containing a label with the product description and characteristics, the manufacturer's name, and the BBA identification mark incorporating the number of this Certificate.

2.2 It is essential that the product is stored such that it is raised off the ground, is inside or under cover on a flat, dry, level surface in a well-ventilated area. The product must be protected from rain, snow and prolonged exposure to sunlight. Boards that have been allowed to get wet or that are damaged must not be used. Nothing should be stored on top of boards.

2.3 The product must not be exposed to a naked flame or other ignition sources. The product must not be exposed to solvents or other chemicals.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Quinn Therm QR Pitched Roof Board.

Design Considerations

3 General

3.1 Quinn Therm QR Pitched Roof Board is for use as thermal insulation in new and existing pitched roofs of dwellings or other buildings with similar temperature and humidity conditions:

- above and between sloping rafters
- between and below sloping rafters
- below horizontal ceiling joists
- between and/or to the inner face of studs in dwarf walls and dormer cheeks.

3.2 Roofs should be designed and constructed in accordance with the relevant Clauses of BS 5250 : 2002, BS 5268-2 : 2002, BS 5534 : 2003, and BS 8212 : 1995.

3.3 The product is not a structural component.

3.4 During installation, care should be exercised to ensure that the product is not subjected to any construction, or foot traffic loads. Roof timbers of adequate strength should be used to support such loads.

3.5 It is essential that detailing and jointing of the boards achieves a convection-free envelope (see also section 6.3). Any gaps should be filled, and/or taped. Ridges, abutments and penetrations should also be sealed. Flue pipes passing through the insulation should be suitably sleeved.

3.6 Proper care and attention must be given to maintaining the integrity/continuity of VCL's.

3.7 The requirements/provisions of fire stops should be considered with regard to national Building Regulations.

4 Practicability of installation

The product is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

5 Thermal performance

5.1 Calculations of the thermal transmittance (U value) should be carried out in accordance with BS EN ISO 6946 : 2007 and BRE Report (BR 443 : 2006) *Conventions for U-value calculations using the declared thermal conductivity* ($\lambda_{90/90}$ *value*) of 0.022 $W \cdot m^{-1} \cdot K^{-1}$ for the product and a foil surface emissivity (ϵ) of 0.2. When considering insulation requirements, designers should refer to the detailed guidance contained in the documents supporting the national Building Regulations. The U values shown in Table 1 indicate that the product can contribute to a roof achieving typical design U values referred to in those supporting documents.

Table 1 U values[1]

Element type	Timber dimensions (mm)	Quinn Therm QR Pitched Roof Board thickness[2] (mm) and location with respect to rafter/joist or stud			U value ($W \cdot m^{-2} \cdot K^{-1}$)
		Inside	Between	Outside	
Existing sloping roof withventilated space below underlay	50 x 100 at 400 centres	70	50	–	0.20
		80	50	–	0.18
		100	50	–	0.15
	50 x 150 at 400 centres	60	60	–	0.20
		60	75	–	0.18
		65	100	–	0.15
New sloping roof with LR underlay	47 x 100 at 600 centres	50	80	–	0.18
		–	75	50	0.18
		–	100	50	0.16
		50	100	–	0.16
	47 x 150 at 600 centres	–	135[4]	–	0.20
		–	75	50	0.18
		–	130	50	0.13
Horizontal ceiling	47 x 100 at 400 centres	85	[3]	–	0.16
		115	[3]	–	0.13
	35 x 100 at 600 centres	80	[3]	–	0.16
		110	[3]	–	0.13
Dwarf wall or dormer cheek	38 x 89 at 600 centres	75	–	–	0.28
		55	80	–	0.19
	38x 140 at 600 centres	–	120[4]	–	0.28
		55	80	–	0.19

(1) Plasterboard taken as 12.5 mm at 0.25 $W \cdot m^{-1} \cdot K^{-1}$ and all timber % taken from BR 443.
(2) Nearest available thickness.
(3) 100 mm mineral wool at 0.040 $W \cdot m^{-1} \cdot K^{-1}$.
(4) Includes a 0.01 $W \cdot m^{-2} \cdot K^{-1}$ gap correction.

5.2 The product can contribute to maintaining continuity of thermal insulation at junctions between elements and openings. For Accredited Construction Details the corresponding psi values in BRE Information Paper IP 1/06 *Assessing the effects of thermal bridging at junctions and around openings*, Table 3 may be used in carbon emission calculations in Scotland and Northern Ireland. Detailed guidance for other junctions and on limiting heat loss by air infiltration can be found in:

England and Wales — Approved Documents to Part L and for new thermal elements to existing buildings, Accredited Construction Details (version 1.0). See also SAP 2009 *The Government's Standard Assessment Procedure for Energy Rating of Dwellings*, Appendix K and the *iSBEM User Manual* for new-build

Scotland — Accredited Construction Details (Scotland)

Northern Ireland — Accredited Construction Details (version 1.0).

6 Condensation

Interstitial condensation

6.1 Roofs and walls will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2002, Sections 8.3 and 8.4 respectively, Appendix D, and BRE Report (BR 262 : 2002) *Thermal insulation: avoiding risks* for roofs in England and Wales.

6.2 For the purposes of assessing the risk of interstitial condensation, the insulation core vapour resistivity may be taken as approximately 300 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$ and a resistance value of 4000 $MN \cdot s \cdot g^{-1}$ for each individual foil facing.

6.3 The product, when installed on the internal surface of rafters, joists or studs has an intrinsically high vapour resistance and, when installed in a continuous layer with tightly butted joints and durably taped, filled/sealed gaps and joints, will provide a convection-free envelope of high vapour resistance. Therefore, a suitable vapour-permeable, roof tile underlay may be laid over the insulation boards without a ventilated air space. When using a high resistance (type HR) underlay, the space below it must be ventilated in accordance with BS 5250 : 2002, Section 8.4.

6.4 To minimise moisture entering the roof an effective VCL such as 125 µm minimum thickness polyethylene with sealed and lapped joints, should be placed under the inclined ceiling between the insulation and the internal finish.

Surface condensation

6.5 Roofs and walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed 0.35 $W \cdot m^{-2} \cdot K^{-1}$ and 0.7 $W \cdot m^{-2} \cdot K^{-1}$ respectively at any point and the junctions are designed in accordance with *Limiting thermal bridging and air leakage : Robust construction details for dwellings and similar buildings* TSO 2002, BRE Information Paper IP 1/06 or section 5.2 of this Certificate.

6.6 Roofs and walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed 1.2 $W \cdot m^{-2} \cdot K^{-1}$ at any point. Guidance may by obtained from BS 5250 : 2002, Section 8, or section 5.2 of this Certificate. Additional information can be found in BRE Report (BR 262 : 2002) *Thermal insulation: avoiding risks*.

7 Behaviour in relation to fire

7.1 The product has a Class 1 spread of flame in accordance with BS 476-7 : 1997.

7.2 When installed with an internal lining board securely fixed to timber, eg 12.5 mm thick plasterboard, the product will be contained between the element and internal lining board until one is destroyed. Therefore, the product will not contribute to the development stages of a fire until the lining is compromised.

7.3 The use of the product will not affect the fire rating obtained by tiled or slated roofs when evaluated by assessment or test to BS 476-3 : 2004.

7.4 Elements must incorporate cavity barriers at edges, around openings, at junctions with fire resisting elements and in cavities in accordance with the relevant provisions of the national Building Regulations and relevant purpose group. The design and installation of cavity barriers must take into account any anticipated differential movement.

8 Strength

The product, when installed in accordance with the manufacturer's instructions and this Certificate, will resist the loads likely to be met during installation and in service.

9 Structural stability (over rafter application only)

9.1 Resistance to wind uplift will depend largely on the building geometry and its geographical location and should be calculated in accordance with BS 6399-2 : 1997 or BS EN 1991-1-4 : 2005 and its UK National Annex. Snow loadings should be calculated in accordance with BS 6399-3 : 1988 or BS EN 1991-1-3 : 2003 and its UK National Annex.

9.2 When calculating the fixing spacing required to resist the calculated loadings, the requirements of BS 5268-2 : 2002 or BS EN 1995-1-1 : 2004 and its UK National Annex should be followed where possible. Further guidance can be obtained from the Certificate holder. The Certificate holder must advise on the use of the correct proprietary fixings and approved nails and fixing capacity in accordance with BS 5268-2 : 2002 or BS EN 1995-1-1 : 2004 and its UK National Annex.

10 Resistance to moisture

An effective roof tile underlay will protect the product from wind-driven snow or rain penetrating the tiles/slates in service.

11 Maintenance

As the product is placed within the roof and has suitable durability (see section 12), maintenance is not required.

12 Durability

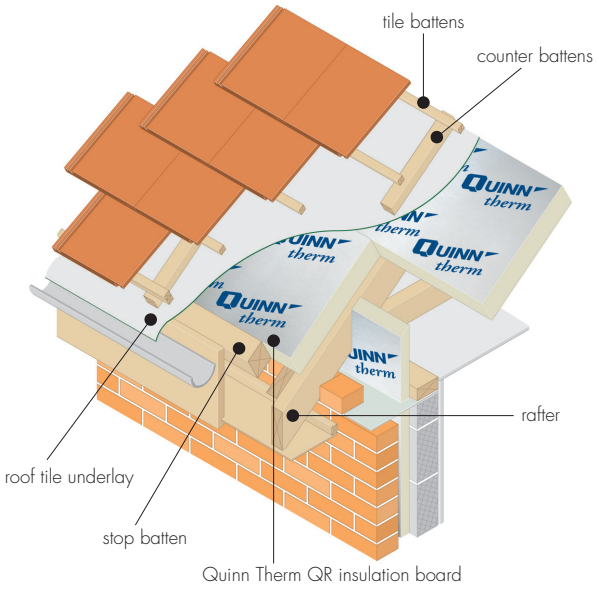
The product is durable, rot-proof and sufficiently stable, and will remain effective as an insulating material for the life of the roof structure in which it is incorporated.

Installation

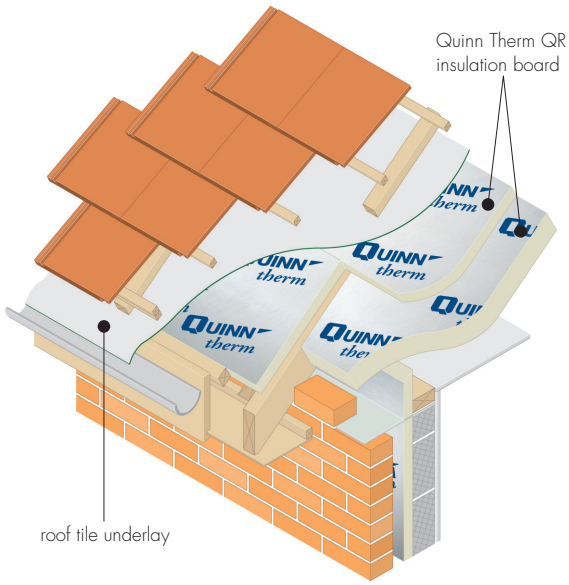
13 General

13.1 Installation of Quinn Therm QR Pitched Roof Board as shown in Figure 1 must be in accordance with the relevant clauses of BS 5534 : 2003, the manufacturer's instructions and can be carried out in all conditions normal to roofing work.

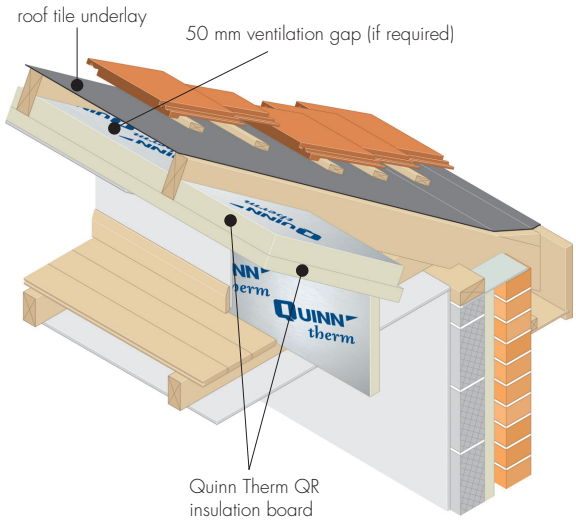
Figure 1 Typical installation



over rafter insulation



above and between rafter insulation



between and under rafter insulation

13.2 The product is light to handle but some handling difficulties may be experienced in windy conditions. Since the product will not support the weight of operatives, appropriate care must be taken during installation and tiling.

13.3 The product can be cut easily using a sharp knife or fine tooth saw but care must be taken to prevent damage, particularly to edges. Damaged boards should not be used.

13.4 A tight fit must be ensured between the product and rafters, the product at the ridge and at roof/wall junctions.

13.5 It is important to fill/seal gaps and joints in the insulation envelope (see section 3.5).

13.6 Where the product is installed in traditional and timber-frame construction, cavity barriers at the junction of the external wall and roof space should be provided.

13.7 Roof tiles or slates are installed in accordance with the relevant clauses of BS 5534 : 2003.

13.8 When applying roof tiles or slates to a warm roof construction, the recommendations of the manufacturer must be followed.

13.9 The product should be installed in conjunction with an appropriate internal lining board for example standard gypsum plasterboard to BS EN 520 : 2004 in accordance with BS 8212 : 1995.

14 Procedure

Over rafters

14.1 A treated-timber stop rail, the same thickness as the product, is fixed to the rafters close to the eaves to provide a firm fixing point for the counter battens. The product is laid over the rafters commencing at the stop rail. The product should be tightly butted and positioned in a staggered pattern with all the joints running from eaves to ridge occurring over the rafters. The procedure is continued until the whole area is covered.

14.2 Any gaps must be sealed with flexible sealant or expanding foam. Large-headed clout nails can be used as a temporary securing measure until the counter battens are secured into place.

Between and over rafters

14.3 The product is cut to size and placed between the rafters on timber batten carriers or sarking clips nailed up the slope of the roof. The upper face of the product must be kept flush with the top of the rafter. The second layer is placed over the rafters as described in sections 14.1 and 14.2.

Between rafters

14.4 Following completion of the roof cladding, the product is cut to size and placed between the rafters. Timber battens or clips are fixed to the inner face of the rafters allowing sufficient depth for the insulation to sit flush with the underside of the rafters. A ventilation gap of 50 mm must be maintained between the product and roof tile underlay to minimise the risk of condensation, unless a vapour permeable underlay is used.

14.5 A sealed polythene VCL with a minimum thickness 125 µm with lapped and sealed joints is placed over the rafter face before applying the internal finish.

Between and below rafters

14.6 If required, after installation as described in section 14.4, a second layer of the product may be added below the rafters running transverse to the first, to provide a staggered layer, and secured accordingly.

14.7 The product should be butted tightly against each other to prevent gaps. Taping the joints with a acrylic adhesive foil tape provides an effective VCL and an air permeability barrier. To achieve an adequate bond, the boards should be clean and free from any contamination.

14.8 The insulation is sealed at all service penetrations.

Horizontal ceiling above a room in the roof — below joists only

14.9 Mineral wool is packed between the ceiling joists; flush with the upper surface of the ceiling joist.

14.10 The product is temporarily fixed to the underside of the timber joists.

14.11 The line of the timber joists is marked on the boards to allow fixing of plasterboard. The procedure continues in the same manner as described in sections 14.7, 14.8 and 14.15).

External finishing — warm roofs

14.12 The vapour-permeable roof tile underlay is laid in accordance with the manufacturer's instructions.

14.13 Treated counter battens (minimum 38 mm deep) are fixed at each rafter run from eaves to ridge using the proprietary fixings at the required centres in accordance with the fixing manufacturer's instructions. The counter batten is also fixed to the anchor batten, with short lengths being tightly butted together.

14.14 Tiling laths are fixed horizontally at spacings to suit the specified tiles or slates with the nails penetrating the full depth of the laths and counter batten.

Finishing

14.15 The plasterboard is fixed over the product and secured with conventional nails or screws to the appropriate length, and finished as normal.

Dwarf walls and dormer cheeks — between studs

14.16 Timber stop battens or clips are fixed to the inner face of the studs allowing sufficient depth for the insulation to sit flush with the inside of the studs. The product is cut to size and placed between the studs and held in place with clout nails. The procedure continues in the same manner as described in sections 14.5 and 14.15.

Dwarf walls and dormer cheeks — between studs and lining

14.17 Timber stop battens or clips are fixed to the inner face of the studs allowing sufficient depth for the insulation to sit flush with the inside of the studs. The product is cut to size and placed between the studs and held in place with clout nails.

14.18 A second layer of the product is temporarily fixed to the inner face of the timber studding.

14.19 The line of the timber studs is marked on the boards to allow fixing of plasterboard.

14.20 The product should be butted tightly against each other to prevent gaps. Taping the joints with an acrylic adhesive foil tape provides an effective VCL and an air permeability barrier. To achieve an adequate bond, the boards should be clean and free from any contamination.

14.21 The insulation is sealed at all service penetrations.

14.22 The plasterboard is fixed over the product and secured with conventional nails or screws to the appropriate length, and finished as normal.

Technical Investigations

15 Tests

Tests were carried out by the BBA on Quinn Therm QR Pitched Roof Board in accordance with BS EN 13165 : 2008 to determine:

- dimensional stability at specified temperature and humidity
- flatness under one-sided wetting
- thickness
- thermal conductivity (λ value).

16 Investigations

16.1 The manufacturing process was examined, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

16.2 Results of test data to BS EN 13165 : 2008 were assessed in relation to:

- dimensions
- squareness
- flatness
- compressive strength at 10% compression
- dimensional stability with temperature
- λ value
- vapour resistance
- density.

16.3 An assessment of the risk of interstitial condensation was made.

16.4 An assessment was made of typical constructions which achieve the design U values.

Bibliography

BS 476-3 : 2004 *Fire tests on building materials and structures — Classification and method of test for external fire exposure to roofs*

BS 476-7 : 1997 *Fire tests on building materials and structures — Method of test to determine the classification of the surface spread of flame of products*

BS 5250 : 2002 *Code of practice for control of condensation in buildings*

BS 5268-2 : 2002 *Structural use of timber — Code of practice for permissible stress design, materials and workmanship*

BS 5534 : 2003 *Code of practice for slating and tiling (including shingles)*

BS 6399-2 : 1997 *Loading for buildings — Code of practice for wind loads*

BS 6399-3 : 1988 *Loading for buildings — Code of practice for imposed roof loads*

BS 8212 : 1995 *Code of practice for dry lining and partitioning using gypsum plasterboard*

BS EN 520 : 2004 *Gypsum plasterboards — Definitions, requirements and test methods*

BS EN 1991-1-3 : 2003 *Eurocode 1 : Actions on structures — General actions — Snow loads*
NA to BS EN 1991-1-3 : 2003 *UK National Annex to Eurocode 1 : Actions on structures — General actions — Snow loads*
BS EN 1991-1-4 : 2005 *Eurocode 1 : Actions on structures — General actions — Wind actions*
NA to BS EN 1991-1-4 : 2005 *UK National Annex to Eurocode 1 : Actions on structures — General actions — Wind actions*

BS EN 1995-1-1 : 2004 *Eurocode 5 : Design of timber structures — General — Common rules and rules for buildings*
NA to BS EN 1995-1-1 : 2004 *UK National Annex to Eurocode 5 : Design of timber structures — General — Common rules and rules for buildings*

BS EN 13165 : 2008 *Thermal insulation products for buildings — Factory made rigid polyurethane foam (PUR) products — Specification*

BS EN ISO 6946 : 2007 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

17 Conditions

17.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

17.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

17.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

17.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

17.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal.

17.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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